

REMARKS

Favorable reconsideration of this application, in view of the present amendments and in light of the following discussion, is respectfully requested.

Claims 1-2 and 4-17 are pending. Claims 1, 4 and 16-17 are amended. No new matter is introduced.

In the outstanding Office Action, Claims 1-2, 4-9 and 13-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach (U.S. Patent No. 4,885,782) in view of Fujita (U.S. Patent No. 5,812,685, hereafter "Fujita"); Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujita and in further view of Packard (U.S. Patent No. 7,035,417); Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujita in view of Hirade (U.S. Patent No. 7,119,267, hereafter "Hirade"); and Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Eberbach and Fujita.

In reply to the rejection of Claims 1-2, 4-9 and 13-17 as being unpatentable over Eberbach in view of Fujita, Claim 1 is amended to recite, *inter alia*, an audio signal processing apparatus for delivering an audio signal to a speaker system, and includes:

an FIR filter configured to generate the preprocessed audio signal by correcting a shift between phases of respective sound waves radiated from respective drive surfaces of the at least two drive units of the speaker system caused by relative physical locations of the respective drive surfaces, *the FIR filter having coefficients corresponding to an overall inverse impulse response of the entire speaker system.* (Emphasis added.)

Turning to the primary reference, Eberbach describes a loudspeaker driver that compensates for the relative position of high frequency drivers and low frequency drivers.¹ Eberbach illustrates a symmetric driver arrangement where low frequency driver (22, 24) are located above and below a high frequency driver (26), and are connected to a crossover

¹ Eberbach at column 1, lines 18-45.

circuit (28).² Eberbach also describes that a delay (30), which may be electrical or may be a combination of electrical and spatial adjustments of the high frequency drivers (22, 24), is adjusted to provide wide angle dispersion with accurate phase response.³ However, as acknowledged in the outstanding Office Action, Eberbach fails to disclose the claimed FIR filter.⁴ To remedy this deficiency in Eberbach, the outstanding Office Action combines Eberbach with Fujita.

Fujita describes a well-balanced polyhedron speaker system that reproduces sound in a spherical radiation pattern.⁵ Fujita illustrates that the polyhedron speaker system includes a DSP (6), D/A converter (10), power amplifier (11), controlling panel (12), and an analog attenuator (100).⁶ Operationally, Fujita describes that the DSP (6) implements either an FIR filter, IIR filter, or a combination thereof, to correct distortion in the frequency response by filtering each of the driving signals corresponding to speaker units (7, 8) arranged on the polyhedron speaker system.⁷

However, Fujita does not describe that the FIR and/or IIR filters correct distortion using an overall inverse impulse response of the entire polyhedron speaker system. Instead, Fujita merely describes that the FIR and/or IIR filters implemented in DSP (6) have coefficient values corresponding to corrections for distortion of frequency and phase inherent in *each* of the speaker units (7, 8).⁸ In other words, Fujita describes that the digital filters implemented in DSP (6) have coefficients to individually correct the signals supplied to each speaker unit (7, 8) based on the frequency and phase distortion of the individual speaker unit (7, 8) corresponding thereto. Nowhere, however, does Fujita describe that the correction factors also include distortion corresponding to the D/A convert block (10), power amplifier

² Eberbach at column 3, lines 34-45; see also Figures 2 and 3.

³ Eberbach at column 3, lines 39-45.

⁴ See the outstanding Office Action at page 3.

⁵ Fujita at column 5, lines 34-58.

⁶ Fujita at column 6, lines 19-25; see also Figure 4.

⁷ Fujita at column 6, lines 14-20.

⁸ Fujita at column 6, lines 26-37.

(11) and analog attenuator (100), much less that the coefficients correspond to an overall impulse response for the entire polyhedron speaker system. Conversely, amended Claim 1 is amended to recite that the FIR filter has coefficients corresponding to *an overall inverse impulse response of the entire speaker system*. Therefore, Fujita fails to disclose the claimed FIR filter, and does not cure the above-noted deficiency in Eberbach. As such, no combination of Eberbach and Fujita describe every feature recited in amended Claim 1, and amended Claim 1 is believed to be in condition for allowance, together with any claim depending therefrom.

Moreover, amended Claims 4, 16 and 17 recite features substantially similar to those recited in amended Claim 1, and are thus believed to be in condition for allowance, together with any claim depending therefrom, for substantially similar reasons. Accordingly, it is respectfully requested that the rejection of Claims 1-2, 4-9 and 13-17 under 35 U.S.C. § 103(a) be withdrawn.

With respect to the rejection of Claim 12 as being unpatentable over Eberbach and Fujita, this rejection is respectfully traversed. The outstanding Office Action takes official notice of an adding unit as the claimed electro-acoustic transducer. However, M.P.E.P. § 2144.03a states that

It is never appropriate to solely rely on 'common knowledge' in the art without evidentiary support in the record, as the principal evidence upon which the rejection is based. *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697 ('[T]he Board cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.').

The outstanding Office Action inappropriately relies solely on conclusory statements that the subject matter recited in Claim 12 is "well known in the art" without providing any of the required evidentiary support. As such, it is respectfully submitted that the rejection of

Claim 12 is improper and should be withdrawn. Thus, Claim 12 is believed to be in condition for allowance for this additional reason.

As all other rejections of record rely upon Fujita for describing the above-distinguished features, and the above-distinguished features are not disclosed or suggested by Fujita, alone or in combination with any other art of record, it is respectfully submitted that a *prima facie* case of obviousness has not been presented. Accordingly, it is respectfully requested that the rejection of Claims 10-11 be withdrawn.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 1-2 and 4-17 is earnestly solicited.

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